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Dated   26 September 2003

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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
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1. Your reference	P015023GB
2. Patent application number *(The Patent Office will fill in this part)*	**0219489.2** · 21 AUG 2002
3. Full name, address and postcode of the or of each applicant *(underline all surnames)*	INTELLPROP LIMITED PO BOX 626 NATIONAL WESTMINSTER HOUSE LE TRUCHOT ST PETER PORT GUERNSEY
Patents ADP number *(if you know it)*	689 460 4001
If the applicant is a corporate body, give the country/state of its incorporation	A GUERNSEY COMPANY
4. Title of the invention	TELECOMMUNICATIONS SERVICES APPARATUS
5. Name of your agent *(if you have one)*	D Young & Co
"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*	21 New Fetter Lane, London EC4A 1DA
Patents ADP number *(if you know it)*	59006

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country   Priority application number *(if you know it)*   Date of filing *(day · month · year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application   Date of filing *(day · month · year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*
a) *an applicant named in part 3 is not an inventor, or*
b) *there is an inventor who is not named as an applicant, or*
c) *any named applicant is a corporate body. See note (d))*

Yes

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9. Enter the number of sheets for any of the
following items you are filing with this form.
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Continuation sheets of this form	NONE
Description	8
Claim(s)	1
Abstract	0
Drawing(s)	1

10. If you are also filing any of the following,
state how many against each item.

Priority documents	0
Translations of priority documents	0
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	2
Request for preliminary examination and search *(Patents Form 9-77)*	0
Request for substantive examination *(Patents Form 10/77)*	0
Any other documents *(please specify)*	Facsimile Letter Dated 21 August 2002

11.   I/We request the grant of a patent on the basis of this application.

Signature   Date   21 August 2002

D Young & Co (Agents for the Applicants)

12. Name and daytime telephone number of person to contact in the United Kingdom   A J M Pilch   023 8071 9500

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Notes

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Patents Form 1/77

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TELECOMMUNICATIONS SERVICES APPARATUS

FIELD OF INVENTION

5   This invention concerns the field of mobile telephone networks and messaging services. Messaging on mobile networks, and in particular text messaging, has grown significantly since its introduction. It is foreseen that in the future, advanced services will continue to fuel this growth as users find that the mobile terminal becomes increasingly useful for a variety of aspects of communication and information
10   retrieval.

BACKGROUND OF THE INVENTION

     Currently, the predominant usage of messaging services on mobile networks is for
15   person to person text messaging, which in the case of GSM networks is supported by the Short Message Service (SMS.) Comparable messaging technologies exist for other mobile network architectures, and next generation messaging systems for GSM (Enhanced Messaging Services EMS, and Multimedia Messaging Services MMS) are being introduced, and collectively these are hereon referred to as text messaging
20   services.

     Other uses of text messaging services include person to Host, and Host to person, where a Host is a network equipment or third party equipment designed to source and/or sink text messages. Hosts typically provide message collection facilities for
25   voting events, competitions or information services and/or message source facilities for subscription services or advertising.

     Information services may require a user to send a text message to a specified number or short code, causing the network to direct the message to a particular Host service.
30   The Host then responds to the message with the required information and the reply is transmitted back to the user. Alternatively a subscription service may be invoked.

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whereby the Host sends a number of information messages over a period of time as requested by the user. Charging for such services is achieved in a number of ways. including premium rate charging for the user request and/or `reverse` billing of the user for the reply.

5

For an information request message round-trip transit time from user to Host and then from Host back to user can be typically 20 seconds or more due to the need to transit the network twice. Each transit of the network comprises two parts. a Mobile Originated MO part from the user's terminal to the network, and a Mobile Terminated

10   MT part from the network to the Host equipment. The service therefore normally requires one MO + MT transit for the request and one MO + MT transit for the reply. For services such as gaming, this two-transit delay reduces the immediacy of the service. and hence the attractiveness of the interaction to the user.

15   **STATEMENT OF INVENTION**

According to the invention there is provided apparatus within a telephone network operable to identify a text message by means of characteristics of the text message as belonging to a category of text messages, to transform characteristics of such an

20   identified text message according to characteristics of the said text message. and to return the transformed message to the original sender. There is further provided apparatus within a telephone network operable to identify a text message that has an alpha destination address by means of characteristics of the text message as belonging to a category of text messages. to transform characteristics of such an identified text

25   message according to characteristics of the said text message. and to return the transformed message to the original sender.

In this context. characteristics of the text message include but are not limited to addressing. content and user configurable settings. The message returned to the sender

30   could have its source address modified to be an address representative of the equipment or service. thereby facilitating a further transaction by the user. using a reply function built in to the user's terminal. The message may be originated by a user

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within the home network or by a user that is roaming, as the equipment may be so placed in the home network so as to intercept all mobile originated messaging traffic from subscribers of the network whether they be roaming or not.

5   Preferably the implementation of the apparatus can identify a category of text message while the message is still in Mobile Originated MO form, i.e. as it enters the network and before it arrives at a Short Message Service Centre (SMSC.) For GSM this architecture is readily achievable by means of SMS Routers. which are normally placed in a network so as to carry and selectively route all MO text traffic. The SMS
10   Routers can implement the function of identifying a category of text messages and can route these messages selectively to an associated subsystem. which may be either external or internal to the SMS Routers. that can provide the desired transformation of the text message. Having been transformed. the message is then returned directly to the user in Mobile Terminated MT form.

15

The return MT transmission is also preferably carried out by the SMS Router. without the message ever passing through an SMSC. Delivery via an SMSC could be used as a fallback in the event that the user was temporarily not reachable directly. although this would not normally be the case since the user was in communication with the network
20   only moments previously when the original MO message was submitted. It can be seen that the transaction from user to apparatus and back to user represents only a single MO + MT transit of the network and hence this significantly reduces the load on network resources. providing a direct economic benefit.   The single transit also typically halves the transit delay normally experienced on current 'information' type
25   services.

A key aspect of any implementation of the invention is the capability to identify a message as a message to be transformed. A feature of the SMS router is its ability to examine all aspects of a text message. including addresses, content and user settings.
30   Using these capabilities. services may be defined which make use of. for example. content keywords or alpha destination addresses as triggers to activate certain transformations and to return the results directly to the user.

4

A further key aspect of the invention is that it allows alpha addressing to be used with text messaging. For example, a message may be sent by a user to a car rental company, using the company name, which is memorable, rather than a number as the address. It

5   is this kind of ease of use which has contributed largely to the success of the Internet. The usability of alpha addresses in telephone networks provides a strong driver for implementation of the invention. Due to people's natural use of language, names are much easier to remember than numbers. Alpha addresses also allow association with brands, and the fact that alpha addressing can provide a close association between

10   messaging and marketing will lead to strong financial incentives to implement widespread alpha support in networks. The present invention provides a key building block in the support of alpha addressing, since the invention is able to intercept message that have alpha addresses and provide appropriate processing for them, whether this be simple address translation, or re-direction to specialised or third party

15   processing engines.

Alpha names may also be trademarked or otherwise protected, while numbers may not.

BRIEF DESCRIPTION OF DRAWINGS

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Referring to Figure 1, users are connected to a mobile telephone network either directly ('on-net') or indirectly whilst roaming ('off-net') and are able to send mobile originated text messages via an MSC (1). The MSC is connected to an SMS Router (2) which is able to examine message characteristics. Dependent upon characteristics of

25   the message the SMS router is operable to identify and select certain messages. These selected messages may be transformed by a message transformation means (3), which may be either fully or partly internal or external to the SMS router. If the transformation means is external to the SMS Router, it may involve interaction with one or more third party equipments. The apparatus is further operable to transmit the

30   transformed message either directly back to the sender or via a storage means such as an SMSC (4). In the case of direct transmission, the SMSC route may be used as a fallback in the event of failure to deliver directly.

5

SPECIFIC DESCRIPTION

5   Detailed operation of the invention is now described by means of example applications of the invention, with reference to Figure 1. One such application example is operable to automatically provide textual airline information in response to queries sent by users using text messaging.

10   Currently these users would normally have to call the airline's information department using a voice call, and these assistance calls are very expensive for companies to provide. Furthermore the telephone number to call can be difficult to determine, especially if the mobile user is away from his office or home. The textual alternative service exemplified here requires no knowledge of telephone numbers or company locations, just the name of the company, brand or service to be contacted. In this

15   example, mobile subscribers who have queries about an airline's arrival or departure times instead send a text message including the flight number, using the name of the airline (e.g. BA, Iberia, Continental) as the destination address, in order to receive a rapid response to their query.

20   The ease of use of a system that allows the text 'BA123' to be sent by text message to the address 'BA' to provide an immediate response with flight details and expected arrival time cannot be overstated.

25   In the above example the system operates as follows. The message is transmitted via the MSC (1) and via the SMS Router (2). The SMS Router examines every message that passes through and checks the destination address for a match against a list of destination addresses stored in an attached database. This match process could be achieved using service logic and data internal to the SMS Router, by using an attached external database, or by using external service logic such as a service control point

30   (SCP), or by another means.

6

In this example the destination address 'BA' is matched by the router, identifying the message as destined for a particular application associated with British Airways. In this example the application is resident on a third party server, and the SMS router is operable to direct the message over a suitable interface to the BA server. The Mobile

5   originated message is converted by the SMS Router to a form suitable for transmission to the BA server, for example using TCP/IP and possibly via a wide-area network, in such a way as to allow the server response to be transmitted back to the sender. This is preferably achieved by including the address of the sender (CLI) and the identity of the service requested (BA123) in the message to the server. As an alternative, the address

10   of the sender could be retained by the SMS Router, and other means used to correlate the request and the response.

Upon reception of the message the BA server processes the message using textual rule matching or another technique, and derives either a response or a 'no match' condition.

15   The operation of such textual engines is outside the scope of this patent, which is primarily concerned with the means for routing queries and responses to and from such an engine. In the event of a match, the appropriate response is formulated into a message and returned to the SMS Router. The address of the sender or other correlation means is included in the response to the SMS Router. In the event of no

20   match, a suitable error message may be sent to the user.

The response is then formulated into a Mobile Terminated message by the SMS Router and transmitted to the user. This retains the advantage of a single transit of the network by each message transaction.

25

In another example, a user wishes to contact the Customer Services department of his telephone network operator to obtain an answer to a query regarding operation of the network, his handset or available services. It would be very convenient if the network operator implemented the present invention, which would allow the subscriber to send

30   a text message in order to receive a response directly from the network. An alpha address is preferred because it is easy to remember. For example the text string HELP, NETWORK or TELCO could be used. The user enters his question, for example

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'How do I turn on delivery reports?' as a text message. and sends the message to the alpha address HELP. The message is intercepted using techniques described in the present invention. and the message is directed to the appropriate server for generation of a response.

5

It is clear that with time. users' demands for access to information and data will only increase. and current experiences with pay-television show that users are prepared to pay for access to services that benefit them. Alpha is a key factor in ease of use for access to information. and the present invention allows networks to provide intuitive
10 and easy access to an increasing wealth of information services, and to derive revenue from their use.

The possibilities for types of information accessible by text messaging means is boundless, and many examples capitalise on the benefit of mobility when traditional
15 sources of information are not normally available. A few examples include—

- Information sources such as weather or road congestion. e.g. send to the address 'WEATHER' or 'TRAFFIC';
- Branded services such as promotional responses, competitions e.g. send to 'COCA COLA ' or 'CRUNCHIE'.
20 - Emergency assistance. e.g. text to 'VISA'. 'BARCLAYCARD' or 'AMEX 'if you lose your credit card
- Access to companies. e.g. text to 'AVIS' or 'HERTZ' to find nearest car rental depot.
- Access to encyclopaedic text engines or 'wizards' that are designed to process
25 natural language questions and provide responses about any factual topic e.g. text to 'WIZARD'.
- Topic-based services aimed at school-children that encourage young people to use text. e.g. send question to 'CHEMISTRY'. 'MATHS' or 'HISTORY'.

30 Alpha addressing can provide further benefits. An example would be contacting a company when the location of the company is unknown. or possibly abroad. In these circumstances. obtaining the telephone number can be quite time consuming.

8

Contacting the airline 'LUFTHANSA' is easy when the name can be used directly as a text address, whereas obtaining the phone number is less easy.

A further advantage of the invention is obtained by means of logging all attempts to
5   access information. This allows the information provider(s) to be aware of the types of information that are being requested, and to dynamically update the information sources according to demand. This is a benefit that is not available to traditional publishers; once a book is sold, the publisher has no means of determining the success or failure of users' references to it. Furthermore the information accessible via the
10   invention may be kept up to date and errors corrected, whereas traditional information sources begin to go out of date as soon as they are published.

Billing issues may also be handled by the SMS Router if not already handled by the MSC. The SMS Router may generate billing records for post-pay customers, and may
15   also interrogate and debit a pre-payment system before allowing access for pre-pay customers.

The invention could be implemented on platforms other than SMS Routers, noting that maximum advantage is gained by recognising messages while still in the MO domain,
20   and before any storage by the network.

9

CLAIMS

1. Apparatus within a telephone network operable to identify a text message by means of characteristics of the text message as belonging to a category of text
5   messages, to transform characteristics of such an identified text message according to characteristics of the said text message, and to return the transformed message to the original sender.

2. Apparatus within a telephone network operable to identify a text message that has
10   an alpha destination address by means of characteristics of the text message as belonging to a category of text messages, to transform characteristics of such an identified text message according to characteristics of the said text message, and to return the transformed message to the original sender.
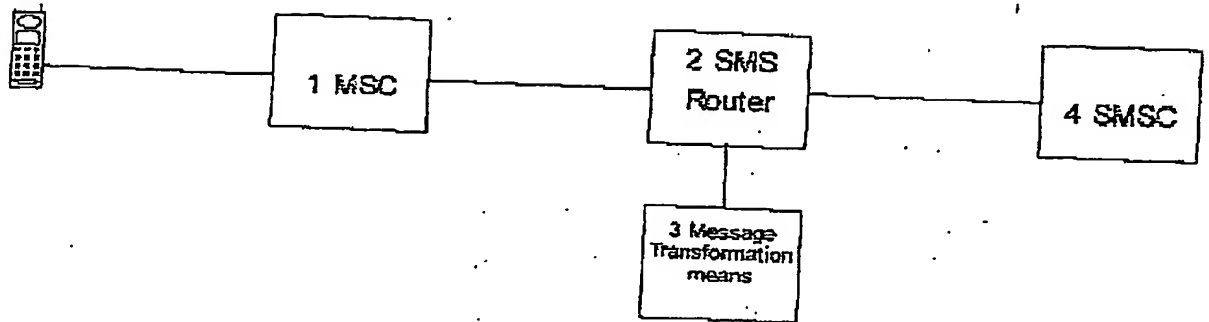
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Figure 1